

COMFORTABLE EARPHONE CUSHIONS

Gerald W. Skulley

ABSTRACT

5 A cushion for a headset earphone comprises a resilient ring having opposite input
and output faces, and a through-opening defining an interior surface between the two
faces. The input face has structure for acoustically coupling the opening to an output face
of an audio speaker, and the output face is resiliently conformable to a lateral face of an
external ear of a listener, thereby acoustically coupling the opening, and hence, the
speaker, to the listener's ear. The interior surface of the cushion can be configured to ef-
10 fectively match the acoustical impedance at the output face of the speaker to the acousti-
cal impedance at the entrance of the listener's ear. In one possible embodiment, the ring
is formed of an elastomer filled with microcapsules containing a material capable of an
endothermic phase changes at a constant temperature, such that the cushion more effec-
tively conducts heat away from the ear, thereby providing long term listening comfort. In
15 another embodiment, the through-opening is acoustically coupled to the output of the
transducer with an acoustic plug such that the cushion is flexibly articulated about the
plug relative to the speaker, thereby enabling the cushion to comply more easily to the
listener's ear using lower contact forces between the cushion and the ear.